

DESCRIPTION

OPTICAL DISK DEVICE

MDS
9-15-06Technical Field*This application is a 371 of PCT/JP03/13226 10/16/2003*

5 The present invention relates to an optical disk device used for recording signals on an optical disk or reproduction signals recorded on an optical disk.

Background Art

10 Conventionally, as such an optical disk device, the one disclosed in JP2000-133929 A has been known, for example. Based on this precedent with a part thereof being modified, the following description is made with reference to FIGs. 26 to 30.

15 FIG. 26 is a schematic cross-sectional view showing a conventional optical disk device (in the case where a focal point of an objective lens is on a first signal plane of an optical disk). FIG. 27 shows a hologram pattern formed on a hologram that is used in the optical disk device. FIG. 28 shows a photodetection pattern formed on a photodetector that is used in the optical disk device and light distribution on the photodetector in the state shown in FIG. 26. FIG. 29 is a schematic cross-sectional view showing the
20 conventional optical disk device (in the case where a focal point of the objective lens is on a second signal plane of the optical disk). FIG. 30 shows a photodetection pattern formed on the photodetector that is used in the optical disk device and light distribution on the photodetector in the state shown in FIG. 29.

25 As shown in FIG. 26, the conventional optical disk device includes a light source 1, a collimator lens 3 for converting light emitted from the light source 1 into parallel light, an objective lens 5 for focusing the parallel light on an optical disk, a hologram 4 for diffracting the light reflected by the optical disk (i.e., returned light), a beam splitter 2 for bending a light path of
30 the returned light that has passed through the hologram 4 and then the collimator lens 3, and a photodetector 7 on which the returned light whose light path has been bent by the beam splitter 2 is focused.

35 The optical disk includes a substrate 6 made of a transparent material, a semi-transparent first signal plane 6a formed on a surface of the substrate 6, and a second signal plane 6b formed in proximity to the first